

Appl. No.: 09/943,579  
Amdt. dated April 1, 2004  
Reply to Office Action of January 16, 2004

### REMARKS/ARGUMENTS

Receipt of the Office Action dated January 16, 2004 is acknowledged. In that Action, the Examiner: 1) withdrew claims 7 and 13 as allegedly drawn to a nonelected species; 2) objected to the amendment filed January 18, 2002 as allegedly introducing new matter into the specification; 3) objected to claims 1-6, 8 and 10-12 as allegedly containing informalities; rejected claims 4 and 10 as allegedly failing to comply with the written description requirement; and 4) rejected claims 1-6 and 8-12 as allegedly being indefinite.

With this Response, Applicants amend claims 1-6, and 8-12. Claims 7 and 13 stand withdrawn. New claims 14-18 have been added. Thus, the pending claims are 1-6, 8-12, and 14-18. Reconsideration is respectfully requested.

#### I. SPECIFICATION OBJECTIONS

The amendment filed January 18, 2002 stands objected to as allegedly introducing new matter into the disclosure of the invention. Without conceding that any or all of the prior amendments to the specification constitute new matter and in the interest of advancing prosecution, Applicants have chosen to amend the cited paragraphs to return to the original wording.

In the paragraph at page 4, lines 13-23 of the specification, the term superscript n of the term "(intron-exon)<sup>n</sup>" has been changed to a subscript n (i.e., (intron-exon)<sub>n</sub>) in order to be more consistent with the original term "intron-exon)<sub>n</sub>" at line 8, and similar terminology used throughout the specification. Applicants respectfully submit that the specification is in compliance with 35 U.S.C. § 132.

#### II. CLAIM OBJECTIONS

Claims 1-6, 8 and 10-12 are objected to as allegedly containing informalities. These claims are currently amended to incorporate the Examiner's suggested wording.

#### III. CLAIM REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 4 and 10 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement due to new

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matter. Both claims are currently amended to omit "intergenic region." With respect to the Examiner's comment on page 7, first paragraph, "[t]he originally filed specification is silent with regard to "intragenic regions," Applicants assume that the Examiner's use of the word "intragenic" was an error and that the term "intergenic" was intended. At page 2, lines 13-16, for example, Applicants describe non-coding regions which make up introns and other non-coding regions which make up intergenic regions. Claims 4 and 10, as currently amended, are believed to comply with the requirements of 35 U.S.C. § 112, first paragraph.

#### **IV. CLAIM REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH**

Claims 1-6 and 8-12 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

##### **A. Claim 1**

In the Office Action it is alleged that Claim 1, drawn to a computer apparatus, recites method steps, and that it is unclear if Applicants are intending to recite a method step or to recite a limitation of the "combiner." The Examiner also takes the position that it is unclear if a step or a limitation of the system is intended by the terms "combining," "using" and "forming."

Applicants currently amend claim 1 to improve claim form, thus making it clearer that recitation of apparatus limitations are intended. As amended, the apparatus of claim 1 includes a processor that is adapted to execute instructions that cause the processor to create a plurality of units and a combiner. The structural relationships and the capability limitations of the units and the combiner are now more clearly stated. The present amendment is supported in the original claim language and also in the specification at page 9, line 16 through page 10, line 6 and page 10, lines 19-22, for example.

##### **B. Claim 3**

With respect to Claim 3, it is alleged that the phrase "accounts for" is indefinite. Claim 3 is currently amended to instead recite that the Bayesian network includes probabilistic dependencies between individual units and dependencies between adjacent parts of the subject genomic sequence.

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Applicants respectfully submit that currently amended claim 3 is also supported in the specification at page 9, line 16 through page 10, line 6, for example.

**C. Claim 8**

In the Office Action of January 16, 2004 it is said that the phrase "is trained on," as recited in claim 8, renders the claim indefinite. Claim 8 is currently amended to omit the phrase in question and instead now recites that the Bayesian network comprises a table or set of probabilities of a given subsequence being a protein encoding exon prepared by applying training data to the computer apparatus, wherein said training data comprises character strings representing known genes of a known genome sequence. This amendment is supported at page 9, lines 3-15, for example.

**D. Claim 9**

The term "using" in claim 9 is complained of in the Office Action dated January 16, 2004 as allegedly being indefinite for failing to recite an explicit method step. The Examiner also considers the phrase "account for" as being unclear. Claim 9 is currently amended to omit "using," and now recites explicit method steps beginning with "obtaining," "inputting," "combining," and "forming." As currently amended, claim 9 omits the phrase "accounting for," and instead provides for forming from the Bayesian network a final data output indicating an improved predicted location for each subject gene in the subject genomic sequence. The Bayesian network includes probabilistic dependencies between individual expert systems and dependencies between adjacent parts of the subject genomic sequence. The claim amendments are supported in the specification at page 8, line 9 - page 9, line 15; page 13, lines 4-11; page 16, line 17 - page 17, line 5; and in Figure 1A, for example. Claims 1-6 and 8-12 are believed to fully comply with the requirements of 35 U.S.C. § 112, second paragraph.

**V. NEW CLAIMS**

**A. Claim 14**

New claim 14 is drawn to the method of claim 9 in which the forming step includes creating from the Bayesian network a data output indicating an optimal

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combined predicted location for each subject gene in the subject genomic sequence. This claim is supported in the specification at page 11, line 6, for example.

**B. Claim 15**

New claim 15 is drawn to the method of claim 9 and requires providing a training dataset to the processor representing a plurality of known gene locations on a known genomic sequence, prior to carrying out the combining step recited in claim 9. This claim amendment is supported in the specification at page 9, line 3 - page 10, line 8; and page 11, lines 9-16, for example.

**C. Claim 16**

New claim 16 depends from new claim 15 and requires constructing a conditional probability function or table from said training dataset. This limitation is supported in the specification at page 9, lines 16-21 and in Fig. 1A (37), for example.

**D. Claim 17**

New claim 17 depends from claim 9 and requires selecting a subject gene that is unknown to said expert systems. This limitation is supported in the specification at page 8, lines 1-5, for example.

**E. Claim 18**

New claim 18 is drawn to a computer apparatus comprising means for performing the method of claim 9. This claim is intended to specifically invoke 35 U.S.C. § 112, sixth paragraph and finds support throughout the specification, claims and figures.

**VI. CONCLUSION**

Applicants respectfully request reconsideration and allowance of the pending claims. If the Examiner feels that a telephone conference would expedite the resolution of this case, he is respectfully requested to contact the undersigned.

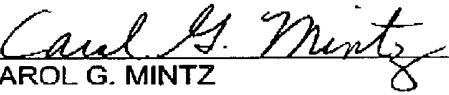
In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that

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the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the prior art which have yet to be raised, but which may be raised in the future.

Applicants respectfully request that a timely Notice of Allowance be issued in this case. If any fees or time extensions are inadvertently omitted or if any fees have been overpaid, please appropriately charge or credit those fees to Hewlett-Packard Company Deposit Account Number 08-2025 and enter any time extension(s) necessary to prevent this case from being abandoned.

Respectfully submitted,

  
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